



5.3.1 Estimating Potential Losses

Requirement: §201.4(c)(2)(iii): [The risk assessment shall include the following:] An overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State shall estimate the potential dollar losses to State-owned or operated buildings, infrastructure and critical facilities located in the identified hazard areas.

Update Requirement §201.4(d): Plan must be reviewed and revised to reflect changes in development, progress in statewide mitigation efforts and changes in priorities...

The estimation of potential losses is expressed in terms of population exposure and dollar losses due to damage of State-owned facilities. Wherever possible, a quantitative approach was used. Where this was not possible, a more qualitative approach was adopted. Estimates of losses and/or exposure are discussed and summarized by hazard in this section. The assessment for each hazard is typically based on a commonly accepted event type, such as the 100-year flood or a National Weather Service severe thunderstorm. Wherever possible, a quantitative and comparable assessment of vulnerability to the hazard was made. The vulnerability assessment builds upon the hazard profile information by geospatially identifying the State-owned assets and population estimates and intersecting them with the hazard profiles to generate a list of exposed assets. Exposure to loss ratios are then applied to estimate the potential amount of damage/loss that could be caused by each hazard event to State-owned facilities.

Note that the loss estimates provided herein use the best data currently available and the methodologies applied result in an approximation of risk. In some cases, the exposure to loss ratios are purely subjective. These estimates are solely intended to provide an understanding of relative risk from hazards and potential losses. However, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning hazards, their effects on the built environment, as well as approximations and simplifications that are necessary for a comprehensive analysis.

It is also important to note that the quantitative vulnerability assessment results are limited to the exposure of people and State-owned facilities, with loss estimations to State-owned facilities being made where appropriate. It was beyond the scope of this Plan update to analyze other types of hazard impacts (e.g., people injured or killed, shelter requirements, loss of facility/system function, and economic losses). Such impacts are candidates for address with future updates of the plan.

Several of the hazards profiled in this Plan update will not include qualitative exposure and loss estimates. The vulnerability of people and State-owned facilities/infrastructure associated with some hazards are nearly impossible to evaluate given the uncertainty associated with where these hazards will occur as well as the relatively limited focus and extent of damage. Instead, a quantitative review of vulnerability will be discussed to provide insight to the nature of losses that are associated with the hazard. For subsequent updates of this Plan, the data needed to evaluate these unpredictable hazards may become refined such that comprehensive vulnerability statements and thorough loss estimates can be made.

As discussed in the previous section, Arizona has experienced significant growth in many areas. Some areas grew at an astonishing rate. With growth is accompanied by development of housing, commercial, industrial, retail and infrastructure, which results in the need for the use of new and existing planning mechanisms. In this Plan, we have begun the process of identifying the growing areas as well as the hazard areas they are located in. This will support future efforts to identify those communities that are likely to be impacted with a variety of issues including increased potential losses. However, we are challenged when we attempt to identify the impact of our growth on potential losses. This is due to the difference between the methods used for the vulnerability assessments in our original Plan and this Plan. Therefore, comparing those loss estimates, it is difficult to determine the effects of the changes in development in the State. We do feel we have produced a more accurate and reasonable set of data for this Plan. If after annual reviews and the initial meeting of the Planning Team to begin the next update process, the method used in this update proves to have been the most useful, we will most likely continue to use it. Therefore, this Plan will set the baseline for assessing vulnerability and we anticipate future updates to reflect the State's growth and development changes accurately in terms of loss estimates.



Below is a sample of the table which can be found in the Dam Failure, Flooding/Flash Flooding, Hazardous Materials Incidents and Wildfire profiles. For better reader understanding, the sample table provides a brief explanation of the column titles as well.

SAMPLE: Summary of State-Owned asset inventory loss estimates based on ...					
Jurisdiction	<u>Impacted Facilities</u> All State owned critical & non-critical		<u>Estimated (x \$1,000)</u>		
	<u>Total Facilities</u> Critical & Non-critical	<u>Percentages</u> Of Statewide Total	<u>Replacement</u> <u>Cost</u> Property Value	<u>Structure Loss</u> Portion to be most likely damaged by hazard	<u>Total Loss</u>
Statewide	127	100.00%	\$100,561	\$50,280	\$50,280
Apache*	0	0.00%	\$0	\$0	\$0
Cochise*	0	0.00%	\$0	\$0	\$0
Graham	34	26.77%	\$14,577	\$7,289	\$7,289
* Denotes lack of available information for assessment.					